

Work Order ID 150521

Thursday, August 25, 2016 10:35:52 AM

150521

Page 1

Item ID: D4931-1

Accept

N1900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Engine Fitting (for acft models B2 & previous)

Start Date: 8/29/2016 Start Qty: 5.00

5

Cust Item ID:

Required Date: 9/19/2016 Req'd Qty: 5.00

5

Customer:

Reference:

Approvals: Process Plan: **DAS**
21 Date: **AUG 25 2016**
QC: **9-89** Date:

Tooling:

Date:

SPC (Y/N):

Date:

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D4931	A

100

0.13

100

Doosan

Doosan Lathe

Hardinge CNC LATHE SMALL

Memo

Machine as per folio FB210

Folio rev: **AA**DWG REV: **A**

Deburr

0.43

110

0.00

110

QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

Memo

0.01

DAS**45****9-89****2016-07-04****DAS****45****9-89****2016-09-04**

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing				
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process	OTHER :							
Misidentified ☐	☐ Past Due								

Work Order ID 150521

Thursday, August 25, 2016 10:35:52 AM

150521

Page 2

Item ID: D4931-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Engine Fitting (for acft models B2 & previous)

Start Date: 8/29/2016 Start Qty: 5.00

5

Cust Item ID:

Required Date: 9/19/2016 Req'd Qty: 5.00

5

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

QC8- Inspect parts - second check

0.00

120

QC

Memo

0.02

Quality Control

130

Identify as per dwg & Stock Location: 57/38

0.00

130

Packaging

Memo

0.01

Packaging

140

QC21- Final Inspection - Work Order Release

0.00

140

QC

Memo

0.08

Quality Control

DAS

49

9-89

16/09/06

SEP 06 2016

DAS

21

9-89

SEP 07 2016

DAS

21

9-89

SEP 07 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : _____																			

Picklist Print

Thursday, August 25, 2016 10:35:55 AM

Page 1

Work Order ID: 150521

150521

Parent Item: D4931-1

D4931-1

Parent Item Name: Engine Fitting (for acft models B2 & previous)

Start Date: 8/29/2016

Required Date: 9/19/2016

Start Qty: 5.00

Required Qty: 5.00

Comments: IPP REV:A NEW ISSUE 13-09-05 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M303R2.000		Purchased	No				f	15.7000		1.315789			

M303R2 000

303 ROUND BAR 2"

Location

Loc Qty

Loc Code

MAT028

15.7

m133827

2.5

m134776

13.2

DAS

45

9-89

2016-09-04

1.17

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
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Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

DART AEROSPACE LTD		Work Order: 150521
Description: EAPS P2 Engine Fitting		Part Number: D4931-1
Inspection Dwg: D4931	Rev: A	Page 1 of 1

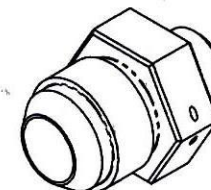
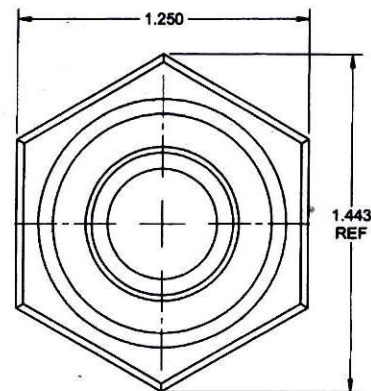
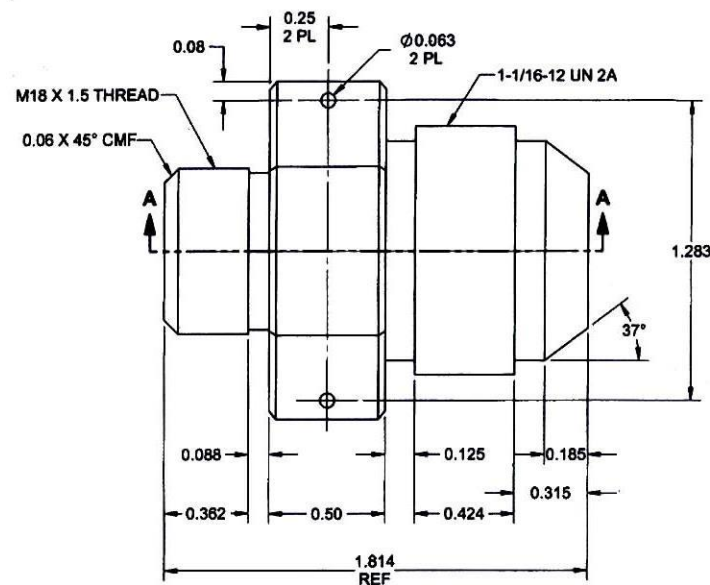
INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.06 x 45°	+/-0.030 x +/-0.5°	0.06x45°	✓		caliper	OK
0.362	+/-0.010	0.362	✓		"	"
0.088	+/-0.010	0.088	✓		"	"
0.08	+/-0.030	0.075	✓		"	"
0.25	+/-0.030	0.25	✓		caliper	OK
0.50	+/-0.030	0.504	✓		"	"
Ø0.063	+0.004/-0.001	0.063	✓		"	"
0.125	+/-0.010	0.125	✓		"	"
0.424	+/-0.010	0.424	✓		"	"
0.315	+/-0.010	0.315	✓		"	"
0.185	+/-0.010	0.185	✓		"	"
37°	+/-0.5°	37°	✓		"	"
1.254	+/-0.010	1.433	✓		"	"
1.250	+/-0.010	1.250	✓		"	"
Ø0.472	+0.006/-0.001	0.475	✓		"	"
Ø0.670	+0.008/-0.001	0.670	✓		"	"
0.500	+/-0.010	0.500	✓		"	"
0.950	+/-0.010	0.950	✓		"	"
Ø0.609	+0.008/-0.001	0.609	✓		"	"
0.938	+0.000/-0.005	0.936	✓		mic	OK
1.804 Ref	+/-0.010	1.814	✓		caliper	OK
1-1/16-12 UN 2A	N/A	OK	✓		nut	Stop
M18 x 1.5 Thread	N/A	OK	✓			
Wire Size 0.55	Max 1.099 ⁵ Min 1.093 ⁸	1.095	✓		mic 1-2	OK
Wire Size 0.040	Max 0.737 ⁸ Min 0.732 ³	0.737	✓		mic 1	OK
1-1/16-12 Ø	MAX 1.0608-MIN 1.0444	1.052	✓		mic 1-2	Stop
M18x1.5	max .7074 min .7027	0.704	✓		mic 1	OK

Measured by: 45 89	Checked by: 49 9.89	QC Inspector:
Date: 2016-09-24	Date: 16/09/06	Date:

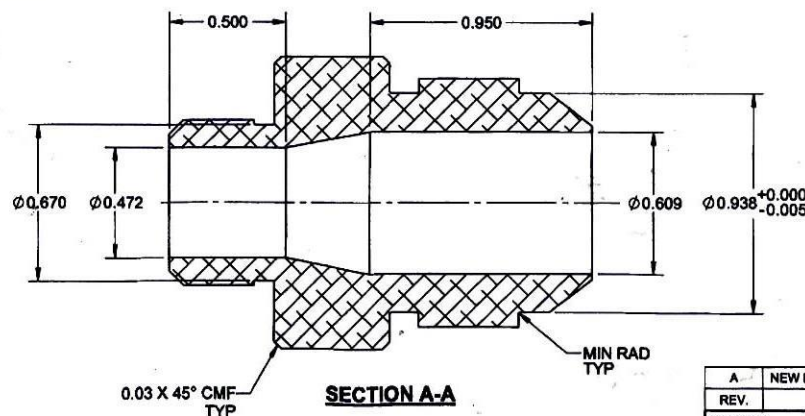
Engineering Approval: (If necessary)	Date:
--	--------------

Rev	Date	Change	Revised by	Approved
A	14.08.27	New Issue	KJ	
B	16.05.30	Dimensions updated	KJ	



SHOP COPY
RETURN TO
ENGINEERING
INCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 150521 MJS
16-08-25

D4931-1 EAPS P2 ENGINE FITTING
(FOR MODELS B2 AND PREVIOUS)



RELEASED
2014-01-03
WJ

NOTES:

1) MATERIAL: AISI 303 STAINLESS STEEL ROUND BAR
PER ASTM A582
REF DART SPEC M303R
OR AISI 303 STAINLESS STEEL HEX BAR
PER ASTM A582
REF DART SPEC M303H

2) FINISH: NONE

3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED

4) UNITS: INCHES UNLESS OTHERWISE NOTED

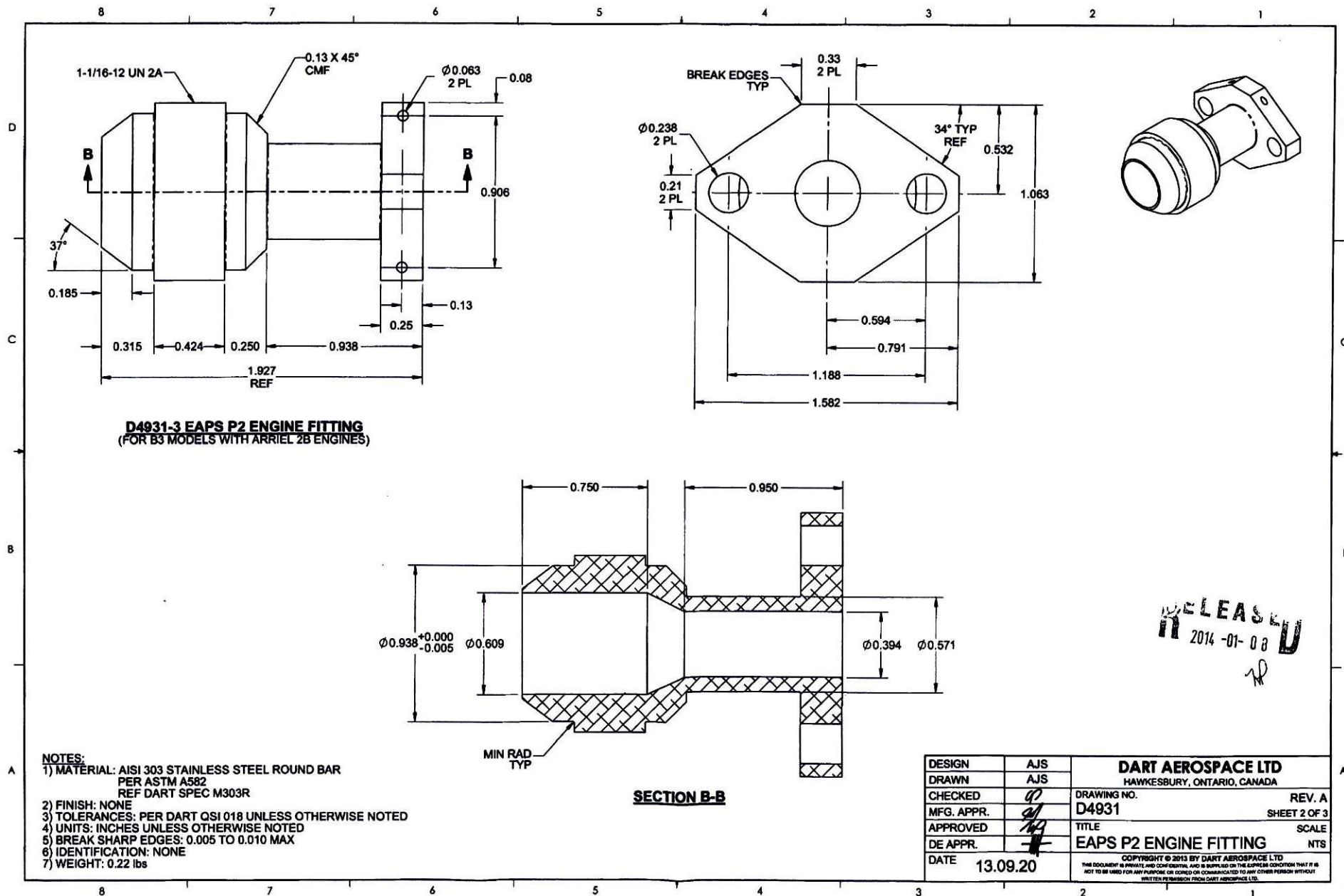
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: NONE

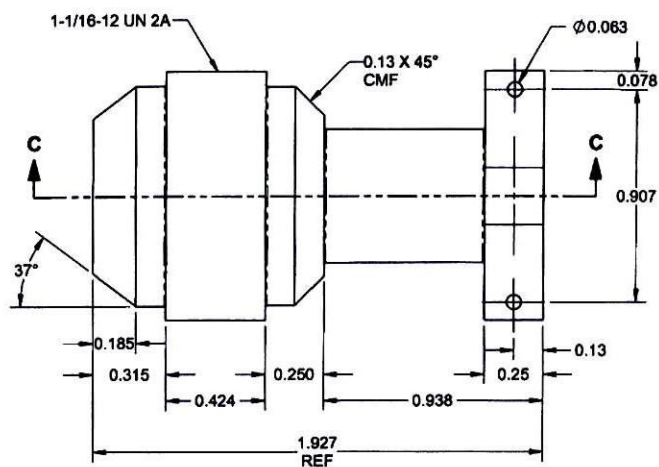
7) WEIGHT: 0.30 lbs

REV.	NEW ISSUE	DESCRIPTION	AJS	13.09.20
DESIGN	AJS		BY	DATE
DRAWN	AJS			
CHECKED				
MFG. APPR.				
APPROVED				
DE APPR.				
DATE	13.09.20			

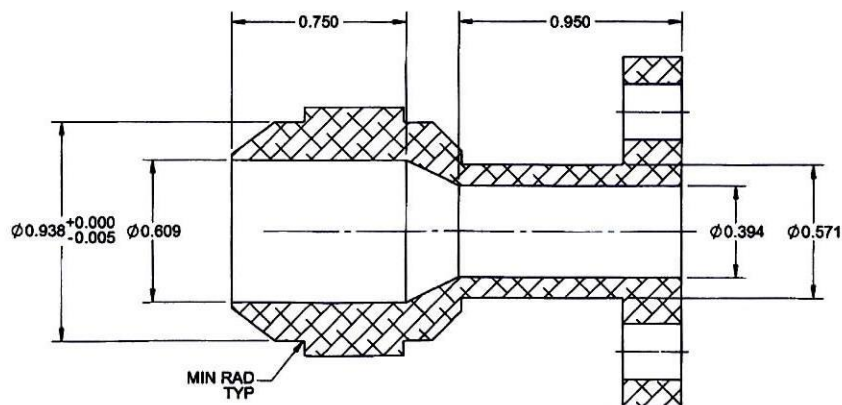
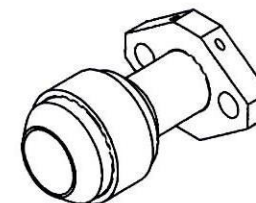
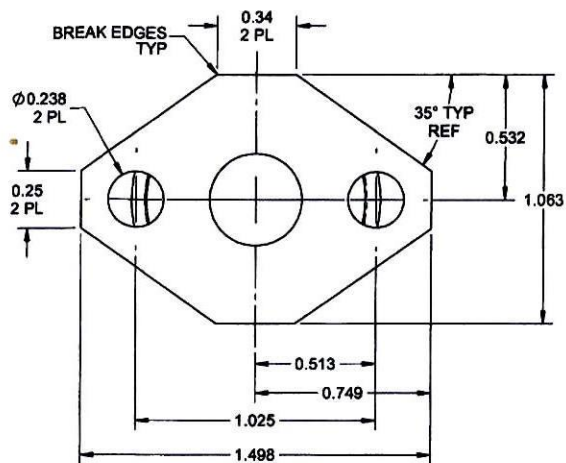
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	REV. A
DRAWING NO. D4931	SHEET 1 OF 3
TITLE EAPS P2 ENGINE FITTING	SCALE NTS
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8 7 6 5 4 3 2 1



D4931-5 EAPS P2 ENGINE FITTING
(FOR B3 MODELS WITH ARRIEL 2D ENGINES)



NOTES:

- 1) MATERIAL: AISI 303 STAINLESS STEEL ROUND BAR
PER ASTM A582
REF DART SPEC M303R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.22 lbs

SECTION C-C

DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D4931	SHEET 3 OF 3
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	EAPS P2 ENGINE FITTING	NTS
DATE	13.09.20	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

RELEASED
2014-01-08

8 7 6 5 4 3 2 1